

- 1 1. An optical waveguide sensor comprising:
2 a housing, the housing having an interior and exterior surface, the exterior
3 surface having at least two layers, the first layer comprised of a low index of refraction
4 material and the second layer comprised of a highly reflective material;
5 a first optical fiber in communication with the housing;
6 a second optical fiber in communication with the housing; and
7 means for detecting the change in the intensity of light when light is
8 passed through the housing, reflected and refracted within the housing and received by
9 the second optical fiber, the optical wave guide sensor being capable of measuring up to
10 at least 2000 $\mu\epsilon$ when the housing is stressed.
- 1 2. The optical waveguide sensor according to claim 1 wherein the housing
2 has first and second opposed ends, the first optical fiber in communication with the first
3 end and the second optical fiber in communication with the second end.
- 1 3. The optical waveguide sensor according to claim 1 wherein the first layer
2 is comprised of polyimide.
- 1 4. The optical waveguide sensor according to claim 1 or 3 wherein the
2 second layer is comprised of aluminum.
- 1 5. The optical waveguide sensor according to claim 1 wherein the first layer
2 is selected from the group consisting of polyimide, silicon and germanium.
- 1 6. The optical waveguide sensor according to claim 1 or 5 wherein the
2 second layer is selected from the group consisting of aluminum, silver, platinum and
3 palladium.
- 1 7. The optical waveguide sensor according to claim 1 wherein the sensor is
2 insensitive to temperatures in the range of about -20 to 50°C .
- 1 8. The optical waveguide sensor according to claim 1 wherein the optical
2 fibers are multimode.
- 1 9. The optical waveguide sensor according to claim 1 wherein the housing is
2 comprised of glass.
- 1 10. The optical waveguide sensor according to claim 9 wherein the housing is

2 cylindrical.

1 11. The optical waveguide sensor according to claim 10 wherein the housing
2 has dimensions of 0.5mm inside diameter x 1mm outside diameter x 100mm long.

1 12. The optical waveguide sensor according to claim 11 wherein the optical
2 waveguide sensor has a gage factor of 490.